

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of

Atty. Docket

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Examiner: F. Ali

ARRANGEMENT FOR READING AN INFORMATION CARRIER

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Sir:

APPEAL BRIEF

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(i) Real Party in Interest

The real party in interest in this application is KONINKLIJKE PHILIPS ELECTRONICS N.V. by virtue of an assignment from the inventors recorded on June 2, 2005, at Reel 017078, Frame 0247.

(ii) Related Appeals and Interferences

There are no other appeals and/or interferences related to this application.

(iii) Status of Claims

Claims 7 and 12 have been cancelled; Claims 1-6 and 8-11 stand finally rejected by the Examiner. Appellant hereby appeals the rejection of claims 1-6 and 8-11.

(iv) Status of Amendments

There was one Response filed on April 18, 2008, after final rejection of the claims on February 21, 2008, this Response having been considered by the Examiner.

(v) Summary Of Claimed Subject Matter

The subject invention relates to an arrangement for reading an information carrier, i.e., an optical information carrier. This is shown in Fig. 1, and described in the specification on page 5, lines 13-14.

As claimed in claim 1, the subject invention includes "a read head for scanning the information carrier along a scanning path and thereby generating one or more electrical signals in response to a pattern recorded along the scanning path". This is shown in Fig. 1 and described in the specification on page 5, lines 14-17, in which a read head 4 scans an optical information carrier 2 along a scanning path and generates electrical signals A-D.

The subject invention, as claimed in claim 1, further includes "a signal processing unit for processing the one or more electrical signals". This is shown in Fig. 1 and described in the specification on page 6, lines 4-6, in which signal processing unit 8 receives electrical signals V_{A-D}.

Further, the invention includes "electrical conductors for conveying the one or more electrical signals to the signal processing unit". This is shown in Fig. 1, and described in the specification on page 6, lines 4-6, where electrical conductors 6 transfer the electrical signals to the signal processing unit 8.

In addition, as claimed in claim 1, the subject invention includes "controllable termination means for terminating at least one electrical conductor with a selectable impedance, the controllable termination means comprising at least two impedances

and selecting means for selecting an impedance to terminate the at least one electrical conductor". This is shown in Fig. 5, and described in the specification on page 7, lines 6-12, where the signal processing unit 8 includes controllable termination means 50 having selecting means 51 and selectable impedances R1-R4.

As claimed in claim 1, "the read head performs the scanning by transmitting a radiation beam to the information carrier and receiving a reflected radiation beam from the information carrier". This is shown in Fig. 2, and described in the specification on page 5, lines 24-34, in which the read head 4 includes a radiation source 41 for generating a radiation beam which is imaged onto the information carrier 2 as a scanning spot 44, and radiation reflected from the scanning spot 44 is imaged onto an optical detector 47.

The subject invention, as claimed in claim 1, further includes "measuring means for measuring the reflectance of the radiation beam". This is shown in Fig. 2 and 3, and described in the specification on page 3, line 25 to page 4, line 11, and in more detail on page 5, line 34 to page 6, line 6, where the optical detector 47 includes for sub-detectors 47A-47D which each generate a current signal indicative of an intensity of the radiation (reflected from the scanning spot 44 on the information carrier 2) that is incident on the relevant sub-detector.

Further, as claimed in claim 1, "the controllable termination means selects an impedance dependent on the measured reflectance of the radiation beam". This is described in the specification on page

3, line 31 to page 4, line 11, in which it is described that when the reflectance of the information carrier is high, the controllable termination means may select a lower impedance, while when the reflectance of the information carrier is low, the controllable termination means may select a higher impedance.

The invention, as claimed in claim 3, includes the limitation "the controllable termination means is able to terminate two or more electrical conductors with different selectable impedances". This is described in the specification on page 7, lines 12-21.

The invention, as claimed in claim 4, includes the limitation "the selectable impedance comprises a characteristic impedance of the electrical conductors". This is described in the specification on page 7, line 28 to page 8, line 1.

Furthermore, the invention, as claimed in claim 5, includes the limitation "the controllable termination means selects the characteristic impedance when reading the information carrier at a relatively high speed, and selects a higher impedance when reading the information carrier at a relatively low speed". This is described in the specification on page 7, lines 28-31.

In addition, the invention, as claimed in claim 6, includes the limitation "one or more of the electrical signals are current outputs and in that the selectable impedance functions as a current to voltage converter". This is described in the specification on page 3, lines 14-19.

Another embodiment of the subject invention also relates to an arrangement for reading an information carrier.

As claimed in claim 8, the subject invention includes "a read head for scanning the information carrier along a scanning path and thereby generating one or more electrical signals in response to a pattern recorded along the scanning path". This is shown in Fig. 1 and described in the specification on page 5, lines 14-17, in which a read head 4 scans an optical information carrier 2 along a scanning path and generates electrical signals A-D.

The subject invention, as claimed in claim 1, further includes "a signal processing unit for processing the one or more electrical signals". This is shown in Fig. 1 and described in the specification on page 6, lines 4-6, in which signal processing unit 8 receives electrical signals V_{A-D} .

Further, the invention includes "electrical conductors for conveying the one or more electrical signals to the signal processing unit". This is shown in Fig. 1, and described in the specification on page 6, lines 4-6, where electrical conductors 6 transfer the electrical signals to the signal processing unit 8.

In addition, as claimed in claim 1, the subject invention includes "controllable termination means for terminating at least one electrical conductor with a selectable impedance, the controllable termination means comprising at least two impedances and selecting means for selecting an impedance to terminate the at least one electrical conductor". This is shown in Fig. 5, and described in the specification on page 7, lines 6-12, where the signal processing unit 8 includes controllable termination means 50 having selecting means 51 and selectable impedances R1-R4.

The subject invention, as claimed in claim 8, further includes the limitation "at least one electrical conductor is terminated with a selectable impedance which is selected by optimizing one or more parameters of the electrical signal conveyed by the at least one electrical conductor". This is described in the specification on page 4, lines 14-19.

(vi) Grounds of Rejection to be Reviewed on Appeal

- A. Whether the invention, as claimed in claims 1-6, is unpatentable, under 35 U.S.C. 103(a), over U.S. Patent 6,765,858 to Hoeven, in view of U.S. Patent 4,791,668 to Pringle.

- B. Whether the invention, as claimed in claims 8-11, is unpatentable, under 35 U.S.C. 103(a), over Hoeven in view of Pringle, and further in view of U.S. Patent 5,058,130 to Park.

(vii) Arguments

35 U.S.C. 103(a) states:

"(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made."

(A) Whether Claims 1-6 Are Unpatentable Over Hoeven In View Of Pringle

The Hoeven patent discloses an arrangement for reading an information carrier which includes a read head for scanning the information carrier, a signal processing unit for processing one or more electrical signals generated by the read head, electrical conductors for transferring the one or more electrical signals to the signal processing unit, and termination means (R1-R4 and C) for terminating the electrical conductors.

The Pringle patent discloses a detectable impedance line interface circuit for a.c. coupling a transmission line and a port of a telecommunication facility.

The subject invention, as claimed in claim 1, further includes the limitations "wherein the read head performs the scanning by transmitting a radiation beam to the information carrier and receiving a reflected radiation beam from the information carrier", "wherein the arrangement further comprises measuring means for measuring the reflectance of the radiation beam", and "wherein the

controllable termination means selects an impedance dependent on the measured reflectance of the radiation beam".

The Examiner has indicated "Hoeven teaches utilizing a high impedance for data read at comparatively high data speeds in order to counteract reflectance of the radiation beam ([Hoeven] Column 1 Lines 25-33, "At high read speeds, for example 10 to 20xDVD, disturbing reflections may appear at the input of the signal processing unit, as a result of which the signals conveyed via the flexible cable are unreliable. The reflections can be counteracted by terminating the respective conductors of the flexible cable with a resistive impedance near the input of the signal processing unit"). Pringle teaches a circuit which can provide more than one terminating impedance to a given signal. It is desirable to use the proper impedance when reading data using different techniques, therefore it is obvious to have a means for selecting the proper impedance."

Appellant submits that the Examiner is misinterpreting the subject invention. In particular, the reflections to which Hoeven is referring are electrical reflections at the inputs of the signal processing unit, due in part to high signal rates. This is particularly shown in Fig. 4 of Hoeven and described in the specification at col. 3, lines 1-30, where the inputs 8.1-8.7 of the signal processing unit 8 are connected to outputs of the read head 4 by electrical conductors 6.1-6.7, where electrical signal conductors 6.2, 6.3, 6.5 and 6.6 are connected via respective resistances R1-R4, and a common capacitive impedance C to a

reference conductor 6.4. However, this is not related to the reflectance of a radiation beam being reflected from an optical record carrier.

As described in the subject specification on page 3, line 25 to page 4, line 11, the reflectance from different optical record carriers may differ, and this differing reflectance causes the optical detector to output different signal levels. To that end, the subject invention, as claimed, includes "measuring means for measuring the reflectance of the radiation beam", and "wherein the controllable termination means selects an impedance dependent on the measured reflectance of the radiation beam".

As described in the specification on page 6, lines 1-3, the optical detector output signals are a measure of the intensity of the radiation incident on the detector. As such, this may be used to determine the reflectance of the radiation beam being reflected from the optical record carrier.

While Hoeven arguably discloses means capable of measuring the reflectance of the radiation beam, there is no disclosure or suggestion in Hoeven that this reflectance is indeed measured, and that this reflectance of the radiation beam is related to the reading speed. What is related to the reading speed is the amount of (electrical) reflectance in the signal line, i.e., at higher signal rates (due to higher reading speed), there may occur reflectance of the signal in the signal lines leading to inaccuracies in the signal processing. This is described in the subject specification on page 1, line 25 to page 2, line 2.

However, the noted limitation in claim 1 refers to controlling the impedance based on the reflectance of the radiation beam on the record carrier. This is described in the specification on page 3, line 25 to page 4, line 11.

(B) Whether Claims 8-11 Are Unpatentable Over Hoeven In View Of Pringle, And Further In View Of Park

The above arguments regarding Hoeven and Pringle are incorporated herein.

The Park patent discloses a jitter equalizer for digital transmission filter, in which "an equalizer for equalizing an input data signal of a digital transmission filter for jitter, overshoot and under shoot in amplitude includes a delay circuit which delays an input non-return-to-zero (NRZ) data signal a specified number of bits by synchronizing the input data signal with a basic clock signal, and outputs a plurality of delayed data bit streams each corresponding to a respective delay element of the delay circuit." (Abstract).

Claim 8 includes the limitation "at least one electrical conductor is terminated with a selectable impedance which is selected by optimizing one or more parameters of the electrical signal conveyed by the at least one electrical conductor".

The Examiner now indicates "It would have been obvious to one of ordinary skill in the art to utilize Hoeven's arrangement for reading an information carrier with Pringle's selectable impedance line interface circuit and Park's digital filtering technique.

Hoeven teaches utilizing a high impedance for data read at comparatively high data speeds and Pringle teaches a circuit which can provide more than one terminating impedance to a given signal. It is desirable to use the proper impedance when reading data using different techniques, therefore it is obvious to have a means for selecting the proper impedance."

Appellant submits that this does not make any sense. While Park discloses a jitter equalizer which reduces jitter, there is no suggestion as to what this has to do with selecting the appropriate impedance for terminating an electrical conductor.

It appears that the Examiner has merely searched for a reference relating to "jitter" and is attempting to apply its teachings to the combination of Hoeven and Pringle, without any regard for the structure being disclosed therein.

In the subject specification, on page 4, lines 14-19, and on page 8, lines 6-12, it is indicated that jitter, overshoot and amplitude of the signals applied to the signal processing circuit may be advantageously affected by the choice of the proper termination impedance.

Appellant submits that Hoeven, Pringle and Park neither disclose nor suggest this claim limitation.

Based on the above arguments, Appellant believes that the subject invention is not rendered obvious by the prior art and is patentable thereover. Therefore, Appellant respectfully requests that this Board reverse the decisions of the Examiner and allow this application to pass on to issue.

Respectfully submitted,

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1. (Previously Presented) An arrangement for reading an information carrier, said arrangement comprising:

a read head for scanning the information carrier along a scanning path and thereby generating one or more electrical signals in response to a pattern recorded along the scanning path;

a signal processing unit for processing the one or more electrical signals; and

electrical conductors for conveying the one or more electrical signals to the signal processing unit,

wherein the arrangement further comprises controllable termination means for terminating at least one electrical conductor with a selectable impedance, the controllable termination means comprising at least two impedances and selecting means for selecting an impedance to terminate the at least one electrical conductor,

wherein the read head performs the scanning by transmitting a radiation beam to the information carrier and receiving a reflected radiation beam from the information carrier,

wherein the arrangement further comprises measuring means for measuring the reflectance of the radiation beam,

and wherein the controllable termination means selects an impedance dependent on the measured reflectance of the radiation beam.

2. (Previously Presented) The arrangement as claimed in claim 1, characterized in that the signal processing unit comprises the controllable termination means.
3. (Previously Presented) The arrangement as claimed in claim 1, characterized in that the controllable termination means is able to terminate two or more electrical conductors with different selectable impedances.
4. (Previously Presented) The arrangement as claimed in claim 1, characterized in that the selectable impedance comprises a characteristic impedance of the electrical conductors.
5. (Previously Presented) The arrangement as claimed in claim 4, characterized in that the controllable termination means selects the characteristic impedance when reading the information carrier at a relatively high speed, and selects a higher impedance when reading the information carrier at a relatively low speed.
6. (Previously Presented) The arrangement as claimed in claim 1, characterized in that one or more of the electrical signals are current outputs and in that the selectable impedance functions as a current to voltage converter.
7. (Cancelled).

8. (Previously Presented) An arrangement for reading an information carrier, said arrangement comprising:

a read head for scanning the information carrier along a scanning path and thereby generating one or more electrical signals in response to a pattern recorded along the scanning path;

a signal processing unit for processing the one or more electrical signals; and

electrical conductors for conveying the one or more electrical signals to the signal processing unit,

wherein the arrangement further comprises controllable termination means for terminating at least one electrical conductor with a selectable impedance, the controllable termination means comprising at least two impedances and selecting means for selecting an impedance to terminate the at least one electrical conductor, characterized in that at least one electrical conductor is terminated with a selectable impedance which is selected by optimizing one or more parameters of the electrical signal conveyed by the at least one electrical conductor.

9. (Previously Presented) The arrangement as claimed in claim 8, characterized in that the one or more parameters comprise jitter of one or more electrical signals.

10. (Previously Presented) The arrangement as claimed in claim 8, characterized in that the one or more parameters comprise an amplitude of one or more electrical signals.

11. (Previously Presented) The arrangement as claimed in claim 8, characterized in that the one or more parameters comprise an overshoot of one or more electrical signals.

12. (Cancelled).

(ix) Evidence Appendix

There is no evidence which had been submitted under 37 C.F.R. 1.130, 1.131 or 1.132, or any other evidence entered by the Examiner and relied upon by Appellant in this Appeal.

(x) Related Proceedings Appendix

Since there were no proceedings identified in section (ii) herein, there are no decisions rendered by a court or the Board in any proceeding identified pursuant to paragraph (c)(1)(ii) of 37 C.F.R. 41.37.